ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 4, Issue, 6, pp. 1197-1200, June, 2014

International Journal of
DEVELOPMENT RESEARCH

Full Length Review Article

LEGISLATIVE AND POLICY ASPECTS OF HOSPITAL WASTE

[1]Vanamala Narayana, [*2]Sushma Rudraswamy, [3]Naganandini Sampath and [4]Nagabhushana Doggalli

[1]Department of Conservative and Endodontics, D.A.P.M.R.V. Dental College and Hospital, Bangalore, India
[2]Department of Public Health Dentistry, J.S.S Dental College and Hospital, J.S.S University, Mysore, India
[3]Department of Public Health Dentistry, The Oxford Dental College, Hospital and Research Centre, Bangalore, India
[4]Department of Oral Medicine and Radiology J.S.S Dental College and Hospital, J.S.S University, Mysore, India

ARTICLE INFO

Article History:
Received 25th March, 2014
Received in revised form
19th April, 2014
Accepted 07th May, 2014
Published online 25th June, 2014

Key words:
Legal,
Policy,
Hospital waste,
Health care waste.

ABSTRACT

National legislation is the basis for improving health-care waste practices in any country. It establishes legal controls and permits the national agency responsible for the disposal of health-care waste, usually the ministry of health, to apply pressure for their implementation. The ministry of environment or national environmental protection agency may also be involved; there should be a clear designation of responsibilities before the law is enacted. The law should be complemented by a policy document, and by technical guidelines developed for implementation of the law. This legal "package" should specify regulations on treatment for different waste categories, segregation, collection, storage, handling, disposal, and transport of waste, responsibilities, and training requirements; it should take into account the resources and facilities available in the country concerned and any cultural aspects of waste-handling.

INTRODUCTION

International agreement has been reached on a number of principles that govern either public health or safe management of hazardous waste. These principles-outlined below should be taken into consideration when national legislation or regulations governing healthcare waste management are formulated. The Basel Convention UNEP (1997) signed by more than 100 countries, concerns transboundary movements of hazardous waste; it is also applicable to health-care waste. Countries that signed the Convention accepted the principle that the only legitimate transboundary shipments of hazardous waste are exports from countries that lack the facilities or expertise to dispose safely of certain wastes to other countries that have both facilities and expertise.

REGULATORY PRINCIPLES

The "polluter pays" principle implies that all producers of waste are legally and financially responsible for the safe and environmentally sound disposal of the waste they produce. This principle also attempts to assign liability to the party that causes damage.

The "precautionary" principle is a key principle governing health and safety protection. When the magnitude of a particular risk is uncertain, it should be assumed that this risk is significant, and measures to protect health and safety should be designed accordingly.

The "duty of care" principle stipulates that any person handling or managing hazardous substances or related equipment is ethically responsible for using the utmost care in that task.

The "proximity" principle recommends that treatment and disposal of hazardous waste take place at the closest possible location to its source in order to minimize the risks involved in its transport. According to a similar principle, any community should recycle or dispose of the waste it produces, inside its own territorial limits.

Corresponding author: Sushma Rudraswamy
Department of Public Health Dentistry, J.S.S Dental College and Hospital, J.S.S University, Mysore, India

Legal Provisions

A national law on health-care waste management may stand alone or may be part of more comprehensive legislation such as the following Gazette of India (1998):

- Law on management of hazardous wastes: application to health-care waste should be explicitly stated.
- Law on hospital hygiene and infection control: a specific chapter or article should be devoted to health-care waste.

The law should include the following:

- A clear definition of hazardous health-care waste and of its various categories.
- A precise indication of the legal obligations of the health-care waste producer regarding safe handling and disposal.
- Specifications for record-keeping and reporting.
- Specifications for an inspection system to ensure enforcement of the law, and for penalties to be imposed for contravention.
- Designation of courts responsible for handling disputes arising from enforcement of or noncompliance with the law.

In addition, hospitals should be run, and health-care waste disposed of, in accordance with all other relevant national legislation, such as regulations pertaining to:

- waste in general
- effects on public health and the environment
- air quality
- prevention and control of infectious disease
- Management of radioactive materials.

Policy Document and Technical Guidelines

The policy document should outline the rationale for the legislation, plus national goals and the key steps essential to the achievement of these goals. It may contain the following[1]:

- descriptions of the health and safety risks resulting from mismanagement of health-care waste
- reasons for sound and safe health-care waste management practices in health-care establishments
- listing of approved methods of treatment and disposal for each waste category
- warning against unsafe practices, such as disposing of hazardous health-care waste in municipal landfills
- management responsibilities within and outside health-care establishments
- assessment of the costs of health-care waste management
- key steps of health-care waste management: minimization, separation, identification, handling, treatment, and final disposal of waste; technical specifications for the implementation of each step should be described in separate technical guidelines
- record-keeping and documentation
- training requirements
- Rules governing the protection of workers' health and safety.

The technical guidelines associated with the legislation should be practical and directly applicable. They should include the following specifications, with sufficient detail to ensure that safe practices are observed and appropriate standards achieved

- legal framework covering safe management of health-care waste, hospital hygiene, and occupational health and safety (limits of emission of atmospheric pollutants and measures for protection of water resources may be addressed here or in the other national guidelines)
- the responsibilities of public health authorities, of the national environmental protection body, of the heads of health-care establishments, of the scattered and smaller producers of health-care waste; and of the heads of any private or public waste-disposal agencies involved
- safe practices for waste minimization
- separation, handling, storage, and transport of health-care waste
- recommended treatment and disposal methods for each category of
- Health-care waste and for wastewater.

For ease of application, the definitions of health-care waste categories included in the law should be repeated in the technical guidelines. Gradual implementation of the law is recommended in preference to any attempt to introduce all measures simultaneously, particularly where existing practices are inadequate.

1. **Policy Paper (**Safe healthcare waste management: Policy paper Healthcare waste management (HCWM), WHO)

Unsafe health-care waste management leads to death and disability

Health-care activities lead to the production of waste that may lead to adverse health effects. Most of this waste is not more dangerous than regular household waste. However, some types of health-care waste represent a higher risk to health. These include infectious waste (15% to 25% of total health-care waste) among which are sharps waste (1%), body part waste (1%), chemical or pharmaceutical waste (3%), and radioactive and cytotoxic waste or broken thermometers (less than 1%). Sharps waste, although produced in small quantities, is highly infectious. Poorly managed, they expose health-care workers, waste handlers and the community to infections. Contaminated needles and syringes represent a particular threat and may be scavenged from waste areas and dump sites and be reused. WHO has estimated that, in 2000, injections with contaminated syringes caused,

- 21 million hepatitis B virus (HBV) infections (32% of all new infections);
- two million hepatitis C virus (HCV) infections (40% of all new infections);
- 260 000 HIV infections (5% of all new infections).

Epidemiological studies indicate that a person who experiences one needle stick injury from a needle used on an infected source patient has risks of 30%, 1.8%, and 0.3% respectively to become infected with HBV, HCV and HIV. In 2002, the results of a WHO assessment conducted in 22 developing countries showed that the proportion of health-care facilities that do not use proper waste disposal methods ranges from 18% to 64%.

Health-care waste management may also represent a risk to health (Acharya and Meeta Singh, 2003; Chandrorkar and Nagoba, 2003; http://www.expressindia/ie/daily/19980512/13251734.htm;http://www.bioarc.com/partechnology.htm; Madhuri Sharma, 2005)

Health-care waste management options may themselves lead to risks to health and no perfect readily achievable solution to manage health-care waste exists. Health-care waste, whether generated at smaller rural clinics or larger facilities, can be managed where adequate well-operated infrastructures exist. However, the volumes of waste generated within large facilities and targeted public efforts (e.g., immunization campaigns) are more challenging, particularly in developing countries where resources may be limited. In these difficult situations for which waste disposal options are limited, small-scale incinerators have been used and are still used as an interim solution in less developed and transitional countries. However, small-scale incinerators often operate at temperatures below 800 degrees Celsius. This may lead to the production of dioxins, furans or other toxic pollutants as emissions and/or in bottom fly ash. Transport to centralized disposal facilities may also produce hazards to healthcare handlers, if not safely managed.

Balancing risks to make sound policy decisions in health-care waste management

In addition to risks to health from infectious agents, long-term low-level exposure of humans to dioxins and furans may lead to impairment of the immune system, and impaired development of the nervous system, the endocrine system and the reproductive functions. Short-term high level exposure may result in skin lesions and altered liver function.

The International Agency for Research on Cancer (IARC) (Toronto, 1981) classifies dioxins as a "known human carcinogen". However, most of the evidence documenting the toxicity of dioxins and furans is based upon studies of populations that have been exposed to high concentrations of dioxins either occupationally or through industrial accidents. There is little evidence to determine whether chronic low-level exposure to dioxins and furans causes cancer in humans.

Overall, it is not possible to estimate the global burden of diseases from exposure to dioxins and furans because of large areas of uncertainty. In the last 10 years, the enforcement of stricter emission standards for dioxins and furans by many countries significantly reduced the release of these substances into the environment (Chandrorkar and Nagoba, 2003).

In several Western European countries where tight emissions restrictions were adopted in the late 1980s, dioxin and furan concentrations in many types of food (including breast milk) have decreased sharply. WHO has established tolerable intake limits for dioxins and furans, but not for emissions. The latter must be set within the national context.

Guiding policy principles

In view of the challenge represented by health-care waste and its management, WHO activities are oriented by the following guiding principles:

- Preventing the health risks associated with exposure to health-care waste for both health workers and the public by promoting environmentally sound management policies for health-care waste;
- Supporting global efforts to reduce the amount of noxious emissions released into the atmosphere to reduce disease and defer the onset of global change;
- Supporting the Stockholm Convention on Persistent Organic Pollutants (POPs);
- Supporting the Basel Convention on hazardous and other waste; and
- Reducing the exposure to toxic pollutants associated with the combustion process through the promotion of appropriate practices for high temperature incineration.

Conclusion

To better understand the problem of health-care waste management, WHO guidance recommends that countries conduct assessments prior to any decision as to which health-care management methods be chosen. Tools are available to assist with the assessment and decision-making process so that appropriate policies lead to the choice of adapted technologies.

2. WHO proposes to work in collaboration with countries through the following strategies ("Medical Waste Management" section of CDA's Regulatory Compliance Manual**)**

Short-term

- Production of all syringe components made of the same plastic to facilitate recycling;
- Selection of PVC-free medical devices;
- Identification and development of recycling options wherever possible (e.g.: for plastic, glass,
- Research and promotion on new technology or alternative to small scale incineration;

Until countries in transition and developing countries have access to health-care waste management options that are safer to the environment and health, incineration may be an acceptable response when used appropriately.

Key elements of appropriate operation of incinerators include effective waste reduction and waste segregation, placing incinerators away from populated areas, satisfactory engineered design, construction following appropriate dimensional plans, proper operation, periodic maintenance, and staff training and management.

Medium-term

- Further efforts to reduce the number of unnecessary injections to reduce the amount of hazardous health-care waste that needs to be treated;
- Research into the health effect of chronic exposure to low levels of dioxin and furan; and
- Risk assessment to compare the health risks associated with: (1) Incineration; and (2) exposure to health-care waste.

Long-term

- Effective, scaled-up promotion of non-incineration technologies for the final disposal of health-care waste to prevent the disease burden from:

(a) Unsafe health-care waste management; and (b) exposure to dioxins and furans;

- Support to countries in developing a national guidance manual for sound management of health-care waste;
- Support to countries in the development and implementation of a national plan, policies and legislation on health-care waste;
- Promotion of the principles of environmentally sound management of health-care waste as set out in the Basel Convention; and
- Support to allocate human and financial resources to safely manage health-care waste in countries

REFERENCES

"Medical Waste Management" section of CDA's *Regulatory Compliance Manual.*

AG Chandrorkar, BS Nagoba, Hospital waste management, 1St Edition, Paras Medical Publisher, 2003.

Canadian Society of Hospital Pharmacy, Guidelines for the handling of hazardous pharmaceuticals. Toronto, 1981.

Dr D B Acharya, Meeta Singh, The text book of hospital waste management, Minerva Press -2003.

Gazette of India, Ministry of Environment, New Delhi, Bio-medical waste Management & Handling Rules-1998.

Madhuri Sharma "Hospital Waste Management and its Monitoring", First edition Jaypee Publication, 2005.

Safe healthcare waste management: Policy paper Healthcare waste management (HCWM), WHO

The Indian Express. Law of disposal of hospital waste available at (http://www.expressindia/ie/daily/19980512/ 13251734.htm;http://www.bioarc.com/partechnology.htm.)

UNEP, 1997. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989, and Decisions Adopted by the First (1992), Second (1994) and Third (1995) Meetings of the Conference of the Parties. Geneva, United Nations Environment Programme.

****